

## A NEW SPECIES OF *PSYLLIODES* LATREILLE (COLEOPTERA: CHRYSOMELIDAE) FROM TURKEY<sup>1</sup>

Ali Gök<sup>2</sup> and Ebru Gül Aslan<sup>2</sup>

**ABSTRACT:** A new species of *Psylliodes* (Coleoptera: Chrysomelidae: Alticinae), *P. kasnakensis*, is described and illustrated from Isparta, southwest Turkey. The new species, a member of the *P. picina* Marsham species group, is compared with its congeners. The distinguishing features of the species are specified; habitat and host plant notes are presented.

**KEY WORDS:** Chrysomelidae, *Psylliodes kasnakensis*, new species, *Quercus* spp., Fagaceae, Turkey

The genus *Psylliodes* Latreille, one of the cosmopolitan genera of Alticinae, is distributed in all of the zoogeographical regions of the world, comprises nearly 200 species worldwide (Konstantinov and Vandenberg, 1996), and 125 of them are known to occur in the Palearctic region (Baselga and Novoa, 2003). The current number of the Turkish *Psylliodes* is estimated to be over 50.

Recently, during surveys on the diversity of Chrysomelidae of "Kasnak Oak Forests," a nature reserve mainly consisting of pure stands of vulcanic oak [(*Quercus vulcanica* Boiss. & Heldr. ex) Kotschy.], which is endemic to Turkey, a considerable number of specimens belonging to an unknown *Psylliodes* species were found on *Quercus* spp. The new species belongs to *luteolus* subgroup of *Psylliodes picina* species group and differs from all other known species in the group by having its dorsum conspicuously bicolored. The main purpose of this work is to describe the new species and to present its habitat and host plants.

### METHODS

Ten specimens including the largest and smallest ones of each sex were examined. Specimens were measured for six characters that have been found important in comparing closest species in the *picina* species group. Character abbreviations are as follows: Lb = body length; Le = elytron length; Lp = pronotum length; La = aedeagus length (for males); Ls = spermatheca length (for females); We = maximum width of elytra at middle; Wp = pronotum width. The ratio Le/Lp (relative prothorax size) has been calculated which is also useful for differentiation. All measurements were made with an ocular micrometer and given in millimeters.

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<sup>2</sup> Süleyman Demirel University, Faculty of Arts and Science, Biology Department, 32260 Isparta, Turkey. E-mails: aligok@fef.sdu.edu.tr (corresponding author) and egul@fef.sdu.edu.tr or egaslam@gmail.com

***Psylliodes kasnakensis* Gök and Aslan, sp. nov. (Figs. 1-2)**

**Type Material. Holotype, Male:** Southwest Turkey, Isparta, Kasnak Forest Nature Reserve (37° 44' 53" N, 30° 49' 83" E), 1557 m, leg. A. Gök [printed on red paper]. Paratypes (257 specimens): all same locality as holotype collected at different dates; 14 males, 16 females, 22.06.2006; 21 males, 27 females, 06.07.2006; 25 males, 26 females, 18.07.2006; 31 males, 33 females, 01.08.2006; 18 males, 22 females, 23.08.2006; 9 males, 15 females, 02.09.2006, legs. A. Gök and E. G. Aslan. Holotype and paratypes are deposited in Süleyman Demirel University (SDU), Biology Department, Isparta, Turkey.

**Etymology:** The species epithet, *kasnakensis*, derived from "kasnak" means "riddle-frame oak" in Turkish and refers to the locality "Kasnak Oak Forest" in Isparta, southwest Turkey where the specimens were collected.

**Diagnosis:** The new species appears different from all other known taxa of the *Psylliodes picina* species group and can be easily recognized by the following combination of the characters: head and pronotum orange or reddish, elytra black (having bicolored upperside makes *P. kasnakensis* unique in the group); in males first tarsal segment of fore and middle legs obviously widened and extended; humeral calli quite evident, impunctate; elytra with regular rows of punctures effaced towards apex; aedeagus almost parallel sided, ventral groove deep and long, ligula distinct in dorsal view; receptacle of spermatheca long, pump distinctly divided from receptacle, ductus reaches to half of the receptacle, has a thin and long extension at apex.

**Description: Measurements. Males:** Lb = 2.02-2.60 (Mean: 2.37, SD: 0.19); Le = 1.43-1.95 (Mean: 1.70, SD: 0.18); We = 1.04-1.36 (Mean: 1.20, SD: 0.11); Lp = 0.48-0.58 (Mean: 0.53, SD: 0.03); Wp = 0.75-0.97 (Mean: 0.85, SD: 0.06); La = 0.88-1.04 (Mean: 0.97, SD: 0.05); Le/Lp = 2.93-3.33 (Mean: 3.16, SD: 0.15).

Females: Lb = 1.98-2.60 (Mean: 2.33, SD: 0.22); Le = 1.40-1.95 (Mean: 1.68, SD: 0.21); We = 0.97-1.33 (Mean: 1.15, SD: 0.12); Lp = 0.45-0.58 (Mean: 0.52, SD: 0.05); Wp = 0.68-0.97 (Mean: 0.82, SD: 0.11); Ls = 0.29-0.32 (Mean: 0.31, SD: 0.01); Le/Lp = 3.07-3.33 (Mean: 3.24, SD: 0.09).

Holotype, Male: Lb = 2.34; Le = 1.69; We = 1.20; Lp = 0.52; Wp = 0.88; La = 1.04.

**Habitus** (Fig. 1): Body convex-elongated, about twice longer than broad. Dorsum bicolored; head and pronotum orange or reddish, elytra black or blackish brown. Antennae and legs except metafemora completely yellow. Labrum and apical parts of mandibula brown, maxillary palpi and other mouth appendages yellowish.

**Head:** seen from above in dorsal view; vertex with few minute punctures; frontal punctures denser and more distinct than those on vertex; background texture smooth; antennal calli evident, moderately raised; frontal ridge wide and flattened, impunctate; antennal sockets and labrum with sparse long hairs; first antennal segment 2.0 times longer than second, fourth 1.2 times longer than third, fifth as long as third.

*Pronotum*: about 1.5 times broader than long; with two small longitudinal impressions basally; basal border narrower than that of elytra; lateroposterior margins clearly visible from above; surface finely and densely punctate; background texture almost smooth.



Fig. 1. *Psylliodes kasnakensis*, habitus

*Elytra*: about 1.4 times longer than broad, widest at middle; slightly tapering posteriorly; humeral calli well developed, without punctures; elytral punctures larger than those on pronotal disc, arranged in longitudinal rows; rows almost effaced towards apex, interrows very slightly convex and minutely punctate.

*Venter*: abdominal sternites relatively convex; covered with sparse white hairs; in males apical part of the last abdominal sternite depressed.

*Legs*: completely yellow except blackish metafemora; first tarsal segments of the fore and middle legs remarkably widened in males, normal in females.

*Aedeagus* (Fig. 2A-C): in ventral view almost parallel sided, rounded apically, with an indistinct apical tip; ventral groove deep and long, reaches to basal opening; in lateral view apex feebly deflexed ventrally; ligula distinct in the apical third in dorsal view basally wide narrowed to the apex.

*Spermatheca* (Fig. 2D): receptacle fairly long, well delimited from pump; pump moderately long, slightly curved ventrally; ductus simple, attached to lateral side of receptacle with a long, indistinct line shaped extension outgoing from its apex.

*Sexual Dimorphism*: The most obvious distinction between males and females occurs in tarsal segments. In males first tarsal segments of fore and middle legs are conspicuously wider than the following two segments; the first one is as long as the second and third combined. All tarsal segments are, however, normally sized in females. The other distinguishing feature is the small depression on the last abdominal sternite of males. Both sexes are virtually similar except for the characters mentioned above.

*Variation*: Some specimens, especially the most poorly developed ones, have pale color variations. In these specimens pronotum, elytra and abdominal segments are somewhat paler than that of original colors described. Aedeagus and

spermatheca forms of these specimens are likewise little sclerized. Color of the humeral calli is also variable among different individuals. There are individuals presenting dark brownish or reddish humeral calli although most of the specimens have completely black elytra.

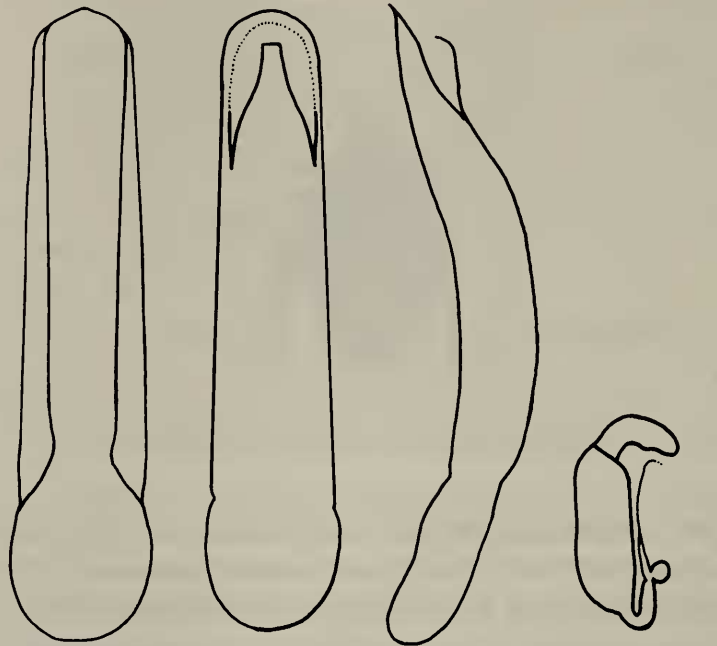


Fig. 2. *Psylliodes kasnakensis*, genitalia. (A) aedeagus ventral view; (B) aedeagus dorsal view; (C) aedeagus lateral view; (D) spermatheca (scale, 0.5 mm).

**Habitat and Host Plants:** The type specimens were collected from xeric mountain slopes in Kasnak Forest Nature Reserve (Isparta) at an altitude of 1557 m a.s.l. from June to September 2006. Kasnak Forest, covering an area of 1300 ha, presents dense forests composed of mixed conifer, including *Pinus nigra*, *P. brutia*, *Cedrus libani*, *Abies cilicica* (Pinaceae), *Juniperus oxycedrus*, *J. excelsa*, *J. foetidissima* (Cupressaceae), and deciduous species, *Quercus vulcanica*, *Q. cerris*, *Q. libani*, *Q. infectoria*, *Q. coccifera*, *Q. frainetto* (Fagaceae), *Acer platanoides*, *A. hyrcanum* (Aceraceae), *Populus tremula* (Salicaceae), *Celtis orientalis* (Legumonosae), *Pistacia terebinthus* (Anacardiaceae), *Cornus mas* (Cornaceae), *Ulmus glabra* (Ulmaceae), and *Phillyrea latifolia*, *Fraxinus oxycarpa*, *F. ornus* (Oleaceae). Having such a rich flora, accompanied with important populations of *Quercus vulcanica* (endemic volcanic oak), makes the Kasnak Forest a natural arboretum in addition to its esthetic beauty. Hence, the area was declared as nature reserve in 1987.

Specimens of *P. kasnakensis* feeding marks consist of minute holes that traverse the blades. They feed primarily on shrub forms of *Q. cerris* and *Q. vulcanica* (about 1.5-2.5 m high), rarely on *Q. libani*. They prefer the young leaves of the host plants and, together with *P. anatolicus* Gök & Çilbiroğlu, they feed in large numbers, particularly on *Q. cerris*.

Cruciferae (or Brassicaceae), Solanaceae, and Graminae (or Poaceae) are the preferred host plant families of species of *Psylliodes* species (Biondi, 1994; Furth, 1983; Mohr, 1966). However, we observed significant series of *P. kasnakensis* feeding simultaneously on the *Quercus* species mentioned above. Similar host records were also reported by Furth (1979) for some alticines especially in the summer and fall months. Anyway, it is difficult to say whether *Quercus* species are the actual host plants of the new species or not.

## DISCUSSION

*Psylliodes kasnakensis* is a member of the *picina* species group because of its general aedeagal shape, shortened orbital lines and very particular shape of hind tibia emphasized by Leonardi (1970, 1978). Having two small longitudinal impressions at the base of the pronotum incorporates the new species into the *Psylliodes luteolus* subgroup (Leonardi, 1970). Among the taxa in the *luteolus* subgroup it resembles *P. algiricus* Allard, *P. wachsmanni* Csiki, and *P. luteolus* (Müller), but is unique because of its conspicuous body coloration as well as the strongly widened first tarsal segments of fore and middle legs in males.

The new species can be easily distinguished from the aforementioned species by its bicolored dorsum (head and pronotum orange or reddish, elytra black) which is entirely yellow reddish in *P. algiricus*, reddish brown in *P. wachsmanni*, and rusty red in *P. luteolus* (Leonardi, 1972; Warchalowski, 2003). Furthermore, it can be separated from *P. algiricus* by having distinct and dense frontal punctures (almost lacking punctures in *P. algiricus*), parallel sided aedeagus with a rounded apex (distinctly narrowed in the apical third in *P. algiricus*), and the parallel sided receptacle of spermatheca which is strongly narrowed at base in *P. algiricus*. Spermatheca shape of *P. kasnakensis* is more similar to that of *P. wachsmanni*, but it differs from the latter species by the comparatively smaller body length, puncturation of elytra (larger sized in *P. wachsmanni*), and more importantly the symmetric form of aedeagus. (According to Leonardi (1972) *P. wachsmanni* has a recognizable aedeagic asymmetry.) From *P. luteolus*, spermatheca form can separate it (ductus longer in *luteolus*), as well as the lighter colour of apical antennal segments and form of the aedeagus.

*Psylliodes kasnakensis* can be incorporated into the key to the taxa of *Psylliodes picina* complex given by Leonardi and Gruev (1993) by modifying couplet 1 as follows:

1. Dorsum usually yellow-reddish or bicoloured, rarely brown. Frons fairly well punctured, or else hind tibiae comparatively elongate (see Leonardi, 1972: 143, fig. 11) and supraorbital grooves close to inner border of eyes, almost at right angle to supratubercular lines (see Leonardi, 1972: 141, fig. 6): complex of *Ps. luteolus* subgroup ..... 1a
- Dorsum usually red-brown, pitchy brown or blackish, often with more or less evident metallic lustre. Frons usually unpunctured or covered with very fine to almost unperceivable punctures which are often more densely distributed

and less obscure just behind frontal tubercles. Supraorbital grooves more distant from inner border of eyes, at a largely obtuse angle to supratubercular lines (see Leonardi, 1972: 141, fig. 5). Hind tibia stout and greatly curved: complex of *Ps. picinus* (Marsh.).....2

1a. Dorsum bicoloured; head and pronotum orange or reddish, elytra black or blackish brown .....*P. kasnakensis*

— Dorsum unicoloured, usually yellow reddish, rarely brown..... other species of the *P. luteolus* subgroup [*P. luteolus* (Müll.), *P. wachsmanni* Csiki, *P. leonhardi* Heiktgr., *P. pallidicolor* Pic, *nigripennis* All., *P. algiricus* All., *P. puncticollis* Rosh].

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